

# The West American Species of *Murexiella*,

(Gastropoda : Muricidae)

## Including Two New Species

BY

EMILY H. VOKES

Department of Geology, Tulane University, New Orleans, Louisiana 70118

(Plate 50)

ON A RECENT COLLECTING TRIP to Panamá I was delighted to be presented with what I thought must be a new species of *Murexiella*. To be certain, I checked with Dr. Myra Keen, Stanford University, the acknowledged expert on Panamic Muricidae and discovered that this was the species she had figured in her *Sea Shells of Tropical West America* as "*Maxwellia* (?) *humilis* (BRODERIP, 1833)" (1958, p. 354, fig. 342). As I had considered a somewhat different species to be "*Murex*" *humilis* BRODERIP, this led to further correspondence with Dr. Keen and the ultimate conclusion that her figured specimen was, in fact, not "*Murex*" *humilis* but the new species described below as *Murexiella keenae*.

Although KEEN (*op. cit.*) referred this shell to the genus *Maxwellia*, subsequent work by EMERSON (in preparation) has shown that the type of this group should no longer be placed in the Muricinae. Both the new species and "*Murex*" *humilis* are more correctly referred to the genus *Murexiella* CLENCH & PÉREZ FARFANTE, 1945 (type species: *Murex hidalgoi* CROSSE, 1869). This genus is characterized by having an almost circular aperture with no anal notch and from 4 to 10 foliaceous varices, which have the fronds connected by a complex laminated webbing.

Study of the new species of *Murexiella* led to an investigation of the entire West American group of species that belong to the genus. The group is separable into two divisions: the *Murexiella humilis* complex and the *Murexiella lappa* (BRODERIP) complex with 7 nominal species in the first<sup>1</sup> and 6 in the second. The members of the "*humilis*" complex have a globose body whorl, sharply constricted into an elongate siphonal canal. The varices bear elaborate frondose spines. The members of the "*lap-*

*pa*" group have a biconic outline, with almost no noticeable break between body whorl and canal. The spines are short, stubby, and only slightly fimbriated. The species included in this division are most like *Murexiella glypta* (M. SMITH) of the western Atlantic Pliocene to Recent and all are probably descended from an as-yet unknown common ancestor. In a recent paper describing a new species of *Murexsul* from the Galápagos Islands, EMERSON & D'ATTILIO (1969, p. 325) placed the "*lappa*" species in the genus *Murexsul* (type species: "*Murex*" *octogonus* QUOY & GAIMARD, 1833). Although I agree completely with these authors that their new species is a *Murexsul*, I cannot place the other species in that group. There is considerable similarity of morphology between the two, but the intervarical webbing, although greatly reduced, is still present in the species under discussion. Also, the coloration and the nature of the aperture with its small, circular opening and raised peristome indicate that the West American species are closer to *Murexiella* than to *Murexsul*. As I have said before, and will continue to say, we must never forget that all supraspecific groups are completely artificial and the boundaries between the arbitrarily separated "natural groups" must be gradational. For this reason there will always be those intermediate species that might be just as well placed in either of two adjacent groups. The species of the "*lappa*" complex are in that position.

"*Murex*" *humilis* was originally described from Santa Elena, Ecuador (BRODERIP, 1833, p. 175), and was first figured by G. B. SOWERBY, Jr. (1834, pl. 65, figs. 46, 47). These figures show a shell with a marked brown spiral band circling the body whorl at the shoulder. The tips of the spines and the siphonal canal are brown, with a white band at the base of the body whorl. The specimen figured here (Plate 50, Figures 1 - 3) is from off Guaymas, Mexico, and has slightly different coloration. In it the brown

<sup>1</sup> Another new species described by EMERSON & D'ATTILIO in the present number of *The Veliger* brings the total to 8.

shoulder band is confined to the area immediately adjacent to the suture, not extending as far as the row of spines at the shoulder. A second narrow band encircles the body whorl just at the juncture with the siphonal canal. Thus what is white or brown in the Ecuadorian shell is reversed in the Mexican one. The tips of the spines are brown in some Mexican specimens, although not in the one figured.

The possession of some sort of spiral brown stripes is almost characteristic of *Murexiella*. Most of the West American species have these stripes developed to a greater or lesser degree. Some specimens of a species may occur in an all brown variant, but other specimens of the same species will be banded. The nature of the coloration, while consistent in its general appearance, is variable in particulars. *Murexiella hidalgoi*, the western Atlantic type of the genus, has only a faint brown stripe, if any, in the adult stage, but the juvenile specimens often have a strong brown marking. *Murexiella macgintyi* (M. SMITH, 1938) the western Atlantic "analog" of *M. humilis*, also has these stripes, which are most clearly indicated on the shoulder of the shell, appearing as brown blotches between the varices. This tendency toward brown and white stripes is found in other muricine genera, including *Hexaplex s. s.* and *Phyllonotus*, and suggests an original common ancestor for the three groups.

"*Murex*" *norrisii* REEVE, 1845 (Conch. Icon.: *Murex*, plt. 28, fig. 129), described without locality data and not discovered since, is very much like *Murexiella humilis*. *Murexiella norrisii* is a more elongate shell than *M. humilis*, with 3 small spines in the area between the base of the body whorl and the first large spine on the siphonal canal. Some specimens of *M. humilis* show a trace of these 3 small spines so that *M. norrisii* may prove to be only an extreme variant of *M. humilis*. However, until a specimen is found that more nearly matches the original material figured by REEVE, *M. norrisii* will be retained as a valid species. There are two specimens of this form in the collections of the British Museum (Natural History), which may or may not be the types, but they are consistent in their appearance so that the type cannot be dismissed as just a pathologic specimen of *M. humilis*.

Another species of *Murexiella* described from the Gulf of California, "*Murex*" *taeniatus* SOWERBY, 1860 (Proc. Zool. Soc. London, prt. 27, p. 428; plt. 49, fig. 3), may well also be a synonym of *M. humilis*. KEEN (1958, p. 361, fig. 362) figured a large specimen of what seems to be *Murexiella vittata* as this species, noting the similarity to *M. vittata* at the time. SOWERBY's illustration shows a much more inflated shell than *M. vittata*, with 3 broad, dark brown spiral bands. In his original description he described the species as "fusco bifasciata," but changed

this to "castaneo trifasciata" in the *Thesaurus Conchyliorum* (1879, p. 29). His illustration shows a shell more akin to *M. humilis* than to *M. vittata*, to my eye, but as the type was not to be located in the British Museum in 1964, this species must remain a question mark for now. In fact, SOWERBY's illustration looks so much like the Atlantic species *Murexiella macgintyi*, I suspect there may be an error in the locality.

The fourth species of the *Murexiella humilis* complex is "*Murex*" *santarosana* DALL, 1905 (Nautilus, vol. 19, p. 14). This species has been placed in the genus *Maxwellia*, but "*Murex*" *gemma* SOWERBY, the type of *Maxwellia*, seems more closely related to the genus *Aspella*. The recently described species *Aspella angermeyerae* EMERSON & D'ATTILIO, 1965, from the Galápagos Islands, clearly demonstrates the link between the 2 groups. However, "*Murex*" *santarosana* is more like the other West Coast species of *Murexiella*, as I discussed in a previous paper (E. H. VOKES, 1964, p. 14) without appreciating the true implications of the resemblance. The radula of *M. santarosana* is identical, however, as well as several points of shell morphology, to that of *Maxwellia gemma* and so it would seem that *Murexiella santarosana* is another of those intermediate species. As KEEN (1958, p. 354) noted, *Murex fimbriatus* A. ADAMS, 1853, non *Murex fimbriatus* BROCCCHI, 1814, is a synonym of *Murexiella santarosana*.

The fifth species of the *Murexiella humilis* group is "*Murex*" *diomedaeus* DALL, 1908 (Bull. Harvard Mus. Comp. Zool., vol. 43, p. 313; plt. 12, figs. 4, 5), described from 85 fathoms in the Gulf of Panamá. *Murexiella diomedaea*<sup>2</sup> is the West American "analog" of *Murexiella hidalgoi*. As a photograph of this specimen has never been published, it seems desirable to include an up-to-date illustration of this lovely species (Plate 50, Figures 6, 7). In the collections of the American Museum of Natural History there is a specimen (no. 92435) of *M. diomedaea* taken by shrimpers off Cedros Island, Mexico, extending the range considerably to the north.

The sixth member of the group is the new species from Panamá mentioned above. It is the largest and most

<sup>2</sup> The spelling of this name is somewhat dubious. In the original description DALL spelled it *diomedaeus*; however, on the plate explanation he spelled it *diomedae* and on the labels with the holotype it is spelled the same. The name is derived from *Diomedea*, the generic name for the Albatross, after the U. S. Fish Commission Steamer "*Albatross*." According to the ICZN Code the original spelling is considered to be correct unless a typographical error or a *lapsus calami* is obvious. Incorrect latinization is not considered as an "inadvertent error" and is not to be emended. Therefore, whatever DALL's intention may have been, it seems best to retain the name as originally published, changing to a feminine termination to agree with the generic name *Murexiella*.

massive of the group. Both it and the seventh, which is another new species discovered while I was engaged in this study, have been confused with *Murexiella humilis* in collections, but both represent valid forms. They are described at the conclusion of this paper.

The members of the *Murexiella lappa* complex are all very much alike and considering the inherent variability of the genus *Murexiella* it is probable that not all of the named species are valid. All originally described as *Murex*, in chronological order of description they are:

1. *Murexiella exigua* (BRODERIP, 1833) [Proc. Zool. Soc. London, prt. 2, p. 174, described from Salango, "Columbia" (i. e., Ecuador); SOWERBY, 1834, Conch. Ill., plt. 60, fig. 17.] This tiny shell, measuring  $\frac{3}{8}$  inch in height, is undoubtedly the juvenile of one of the species of *Murexiella* found on the West Coast, probably *M. lappa*. In the original description it is stated to have 5 varices and be of a "dirty-white" color but nothing more is known of the form.
2. *Murexiella vittata* (BRODERIP, 1833) [Proc. Zool. Soc. London, prt. 2, p. 176, from Guayaquil, Ecuador; SOWERBY, 1834, Conch. Ill., plt. 60, fig. 19.] This species, while morphologically similar to *M. lappa*, is constant in the development of an almost black spiral stripe around the middle of the body whorl, which is visible on the inside of the shell as well as the outside. There are also other additional stripes at the shoulder and the base of the body whorl but they are not seen on the inside of the shell. This stripe, which gives the species its name (*vittata* means striped), can be seen even in very small individuals. I have one specimen 8 mm in height that has this stripe well developed.
3. *Murexiella lappa* (BRODERIP, 1833) [Proc. Zool. Soc. London, prt. 2, p. 177, from Santa Elena Bay, Ecuador; SOWERBY, 1834, Conch. Ill., plt. 60, fig. 15.] This species has a broad, diffuse light brown band circling the body whorl. As is typical of all species of *Murexiella* the number of varices is variable, from 5 to 7 in this case, in general decreasing with larger size.
4. *Murexiella dipsacus* (BRODERIP, 1833) [Proc. Zool. Soc. London, prt. 2, p. 194, also from Santa Elena Bay; SOWERBY, 1834, Conch. Ill., plt. 60, fig. 20. It is well to note that the word *dipsacus*, meaning a teasel or thistle, is a noun and does not become *dipsaca* to agree with *Murexiella*.] This species is very close to *M. lappa*, but is a somewhat more elongate shell and was described as having 8 varices. It may be that the apparent elongation is a result of the extra varix and not a valid distinction. The color is identical with that of *M. lappa*, as is the number and arrangement of varical spines.

I have never seen a specimen of *M. dipsacus*, nor have I ever seen a specimen of *M. lappa* with 8 varices, and the two species may well be the same.

5. *Murexiella radicata* (HINDS, 1844) [Proc. Zool. Soc. London, prt. 11, p. 128, from San Blas, Mexico; REEVE, 1845, Conch. Icon.: *Murex*, plt. 30, fig. 148.] The type specimen of this species differs only in having somewhat shorter spines than is shown in the illustration given by SOWERBY for *M. lappa* (the type of *M. lappa* is no longer to be found), and is actually the normal condition for the species. It is unquestionably a synonym of *M. lappa*.
6. *Murexiella minuscula* (M. SMITH, 1947) [Nautilus, vol. 61, p. 54; plt. 2, fig. 8, from the Pearl Islands, Panamá.] Named as a subspecies of *M. vittata*, this form was stated by SMITH to differ from *M. vittata* s. s. by its "much smaller size," the holotype measuring 18.5 mm in height. The usual size of *M. vittata* is about 23 to 25 mm. He did not note that the coloration is completely different, the shell being dark brown over most of the body whorl, with a white stripe where *M. vittata* has a black stripe. He did not compare his species with *M. lappa*, but it may well be the same.

There is one other species of *Murexiella* to be found in the eastern Pacific. This is *Murexiella perita* (HINDS, 1844) [Proc. Zool. Soc. London, prt. 11, p. 129; REEVE, 1845, Conch. Icon.: *Murex*, plt. 29, fig. 139], which is unlike either of the groups discussed above. It is most like *Murexiella levicula* (DALL, 1889), from the Gulf of Mexico, but lacks the marked median groove seen on the spiral ribs of that species. There is no other similar West Coast shell.

One final species, originally named from "Pacosmayo, Peru," which has been synonymized with *Murexiella dipsacus*, is "*Murex*" *peruvianus* SOWERBY, 1841 [Proc. Zool. Soc. London, prt. 8, p. 147; Conch. Ill., plt. 195, fig. 103]. REEVE (1845) placed SOWERBY's species in synonymy with the neozealandic "*Murex*" *octogonus* QUOY & GAIMARD, 1833 (type of *Murexsul*), but this was refuted by SUTER (1918, p. 401). According to PONDER (1968, p. 31) *Murexsul octogonus* is extremely variable, and if this is the case, then SOWERBY's species probably is a synonym of *M. octogonus*. In any case, SOWERBY's shell certainly came from New Zealand and not from Peru for I have seen several New Zealand specimens that match his illustration exactly, complete with brown topped spiral ribs. If it is not the same as *Murexsul octogonus* then another name is necessary for there is an older *Murex peruvianus*, of LAMARCK, 1816, a *Trophon. Murexsul cwiierensis* FINLAY, 1927, is probably the next available name.

*Murexiella (Murexiella) keenae* E. H. VOKES, spec. nov.

(Plate 50, Figures 8 to 10)

Shell large for the group, nature of protoconch unknown but probably  $1\frac{1}{2}$  smooth, somewhat bulbous whorls; 6 whorls in adult teleoconch. Axial ornamentation on neanic whorls of 7 small varices, becoming from 5 to 7 heavy, ramose varices on body whorl. Spiral ornamentation of 2 strong cords on all whorls except the last, which has 6 and an additional 2 on the siphonal canal. Where spiral cords cross varices small recurved, fimbriate spines produced, those on the canal slightly larger than on the remainder of the shell. Aperture circular, with a projecting, almost entire peristome, broken only at the juncture of the siphonal canal. Outer lip strongly recurved, and marked by a series of laminae connecting the spines. Entire shell covered with minute scabrous growth lines and small spiral threads between the major cords giving a granulated appearance to the surface. Siphonal canal elongated, open, recurved at distal end, terminations of previous canals projecting as a series of spurs along a diagonal line to one side of the channel. Color ranging from peach to light brown, with dark brown blotches between the varices at the shoulder of the shell only; aperture white. In some specimens the tips of the varical spines a slightly darker color than the intervarical areas. Operculum muricoid with a basal (abapical) nucleus.

Dimensions of holotype: height 34.3 mm; maximum diameter 22.5 mm.

Holotype: Los Angeles County Museum of Natural History no. 1259.

Type locality: Venado Beach, Canal Zone (Venado Beach is just at the western boundary of the Canal Zone, approximately 5 miles from the entrance to the Canal); Bay of Panamá.

Discussion: This species is more massive than any other species of *Murexiella*, either Pacific or Atlantic. *Murexiella humilis* may attain the same dimensions but has a much lighter appearance at the same size. The spines are shorter and more ramose in the new species than in *M. humilis* or *M. norrisii* and the coloration is different, *M. keenae* having only a series of brown markings in the intervarical areas at the shoulder of the shell. These are easily seen in Plate 50, Figure 9. So far as is known the range of *M. keenae* is from the Bay of Panamá north to Mexico. Dr. Keen informs me she has seen specimens taken by the shrimp fishermen in Mexican waters and in the collections of the American Museum of Natural His-

tory there is a specimen (no. 154654) dredged by the *Puritan* in 6 to 10 fathoms off the Tres Marias Islands, Nayarit.

As was mentioned above, this is the species that was figured by KEEN (1958, figure 342) as "*Maxwellia*" *humilis*. It was also figured by REEVE (1845, pl. 13, fig. 50) as "*Murex*" *humilis* and that author noted: "This species has been but imperfectly described and figured hitherto for want of a good specimen. It is a species of very peculiar character, its pyriform growth, the curiously recurved bi-squamate structure of the varices, and its orange-red coloring are features of considerable specific interest." However, the original illustrations of "*Murex*" *humilis* given by SOWERBY (1834, pl. 65, figures 46, 47) are actually very well done and easily identified when compared with specimens.

It gives me great pleasure to name this species in honor of Dr. Myra Keen, who has done so much for the study of West American Mollusca in general and the writer in particular. In addition, I would like to express my gratitude to Mrs. Robert H. Stewart of Balboa Heights, Canal Zone, who collected the type specimen, and Mrs. Ben H. Purdy of San Diego, California, who provided the comparative specimens of *Murexiella humilis* (including the one figured) for this study. There is another very fine specimen of *M. keenae*, from Venado Island, near Venado Beach, in her collection.

*Murexiella (Murexiella) laurae* E. H. VOKES, spec. nov.

(Plate 50, Figures 4, 5)

Shell small for the group; protoconch of  $3\frac{1}{2}$  somewhat bulbous whorls, ending at a small varix; 6 whorls in adult teleoconch. Axial sculpture of 8 small varices on early whorls, gradually decreasing to 5 on later whorls of all specimens seen. Spiral ornamentation of 2 strong, square-topped cords on all whorls except last; on that whorl there are 5 cords on the body and 2 more on the siphonal canal. In the adult shells spiral cords completely obsolete in intervarical areas, visible only on abapertural side of varices. Where each spiral crosses the varices short, foliaceous, recurved spines developed, and one additional spine between the suture and the shoulder spine, where no spiral is present. Spines connected by a complex webbing formed by multiple laminae giving a fretted appearance to the abapertural face of the varices. Aperture almost circular, slightly crenulated into the varical spines; no anal notch, columellar lip smooth, free-standing. Siphonal canal moderately long, open by a narrow slit,

